

C
716 JUL 17

1917

ELECTRICAL

SHOW

APRIL

12 - 13 - 14

MATINEE

APRIL

14

NIGHT 35¢

MAT. 25¢

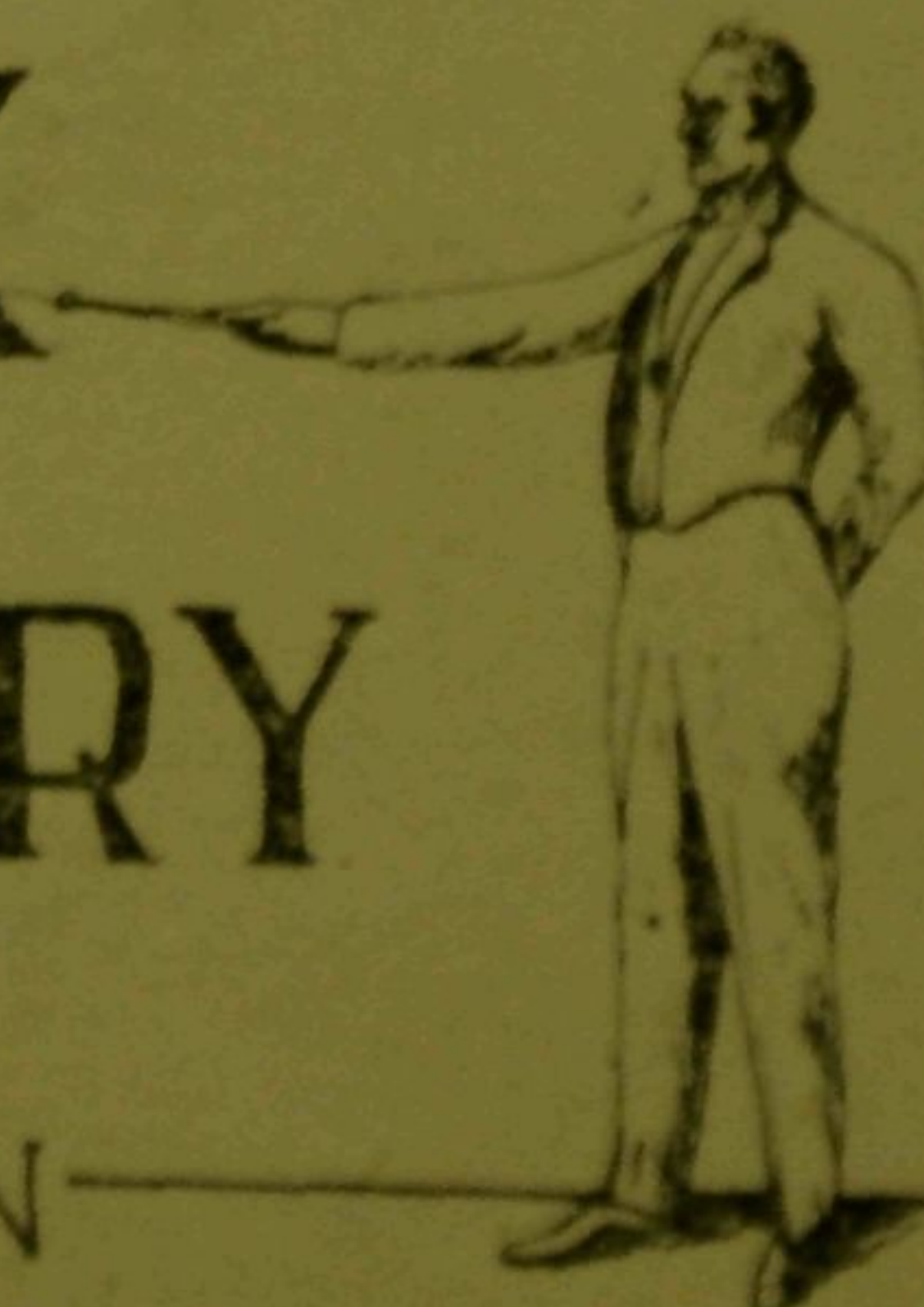
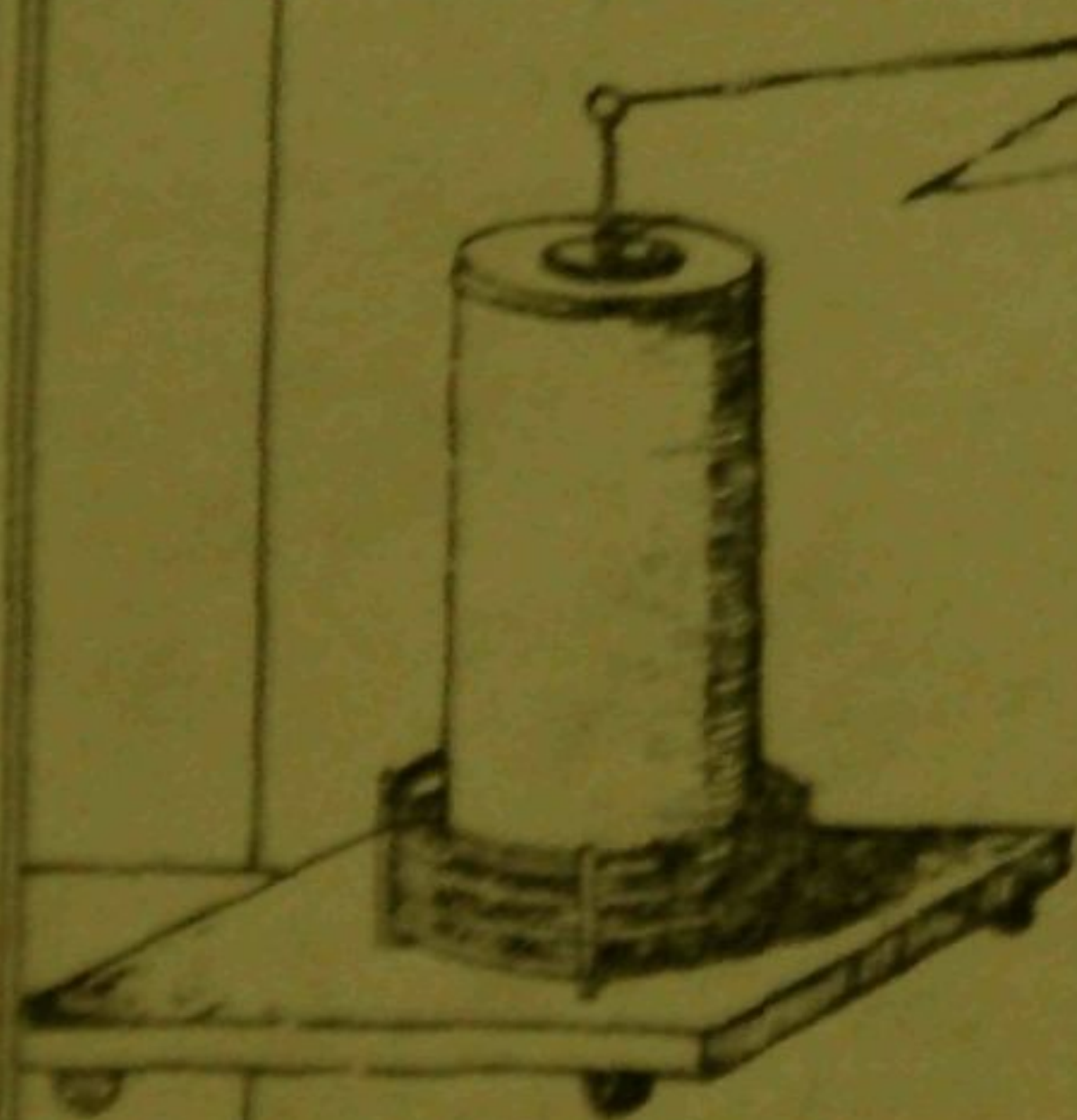
GYM ANNEX

E·E·LABORATORY

UNIVERSITY · ILLINOIS

— URBANA —

— CHAMPAIGN —



New Neckwear

ZOM is displaying a new assortment of neckties—just as dazzling in their way as the electrical exhibit—many of them are very reasonably priced for

50 cents

ROGER ZOMBRO

Green Street

N. B.—I am running for office.

When You Think of Drugs Think of

SPALDING'S

Our Quality the Best

Our Price the Fairest

602 E. Green St.

Champaign, Ill.

THEATRE BELVOIR

The Home of High Class

PHOTOPLAYS and ROAD ATTRACTIONS
Showing Metro and Triangle Pictures

COMING

WEDNESDAY, APRIL 25

AL JOLSON in Robinson Crusoe, Jr.

FRIDAY, MAY 4

MITZI HOJOS in Pom Pom

Always Open Always Something Good



Great Inventions of the Day

The CORONA is acknowledged as the most convenient and practical typewriter for the student, faculty man, or one who travels to any extent. "Handy as the pen." Price with carrying case, \$50.00. Easy terms.

The master model No. 10 ROYAL is without question the leader of \$100 typewriters, and is THE typewriter you will eventually buy for your heavy office work. Call us for a demonstration. "Compare the Work."

PAXTON TYPEWRITER
EXCHANGE

Bell phone, 922; Auto, 1574. 612 E. Green St.

Typewriters cleaned and repaired. 2nd hand machines for sale.

The Master Vacuum Sweeper

The HOOVER ELECTRIC

ONE of the most interesting exhibits of the whole show is that of the Hoover Electric Vacuum Sweeper in Booth No. 32. The Hoover is the machine that ACCOMPLISHES what other vacuum cleaners have only before attempted.

THE HOOVER lifts the rug or floor covering from the floor, thoroughly shakes it and vacuum cleans every particle of imbedded dirt, surface dirt, lint, threads, etc., giving a 95 per cent cleaning with the easiest and most leisurely operation.

DON'T MISS THE HOOVER EXHIBIT
YOU WILL FIND IT INTERESTING

The Swartz Electric Shop

South Race St.

Urbana

1917

ELECTRICAL SHOW

UNIVERSITY OF ILLINOIS

April 12-13-14

Matinee the 14th

Gymn Annex and E. E. Laboratory

Under Management of E. E. Society

FREDERICK A. BROOKS, President

MANAGERS

L. E. Hostetler, '17..... General Manager
D. G. Evans, '17..... Chief Engineer
G. C. Wilson, '17..... Business Manager
P. A. Raibourn, '17..... Advertising Manager
F. A. Brooks, '17..... Supt. of Student Exhibits
E. R. Petzing, '18..... Supt. of Construction
H. N. Felton, '17..... Treasurer



"For Men Who Care"

That Is Why We Sell Them

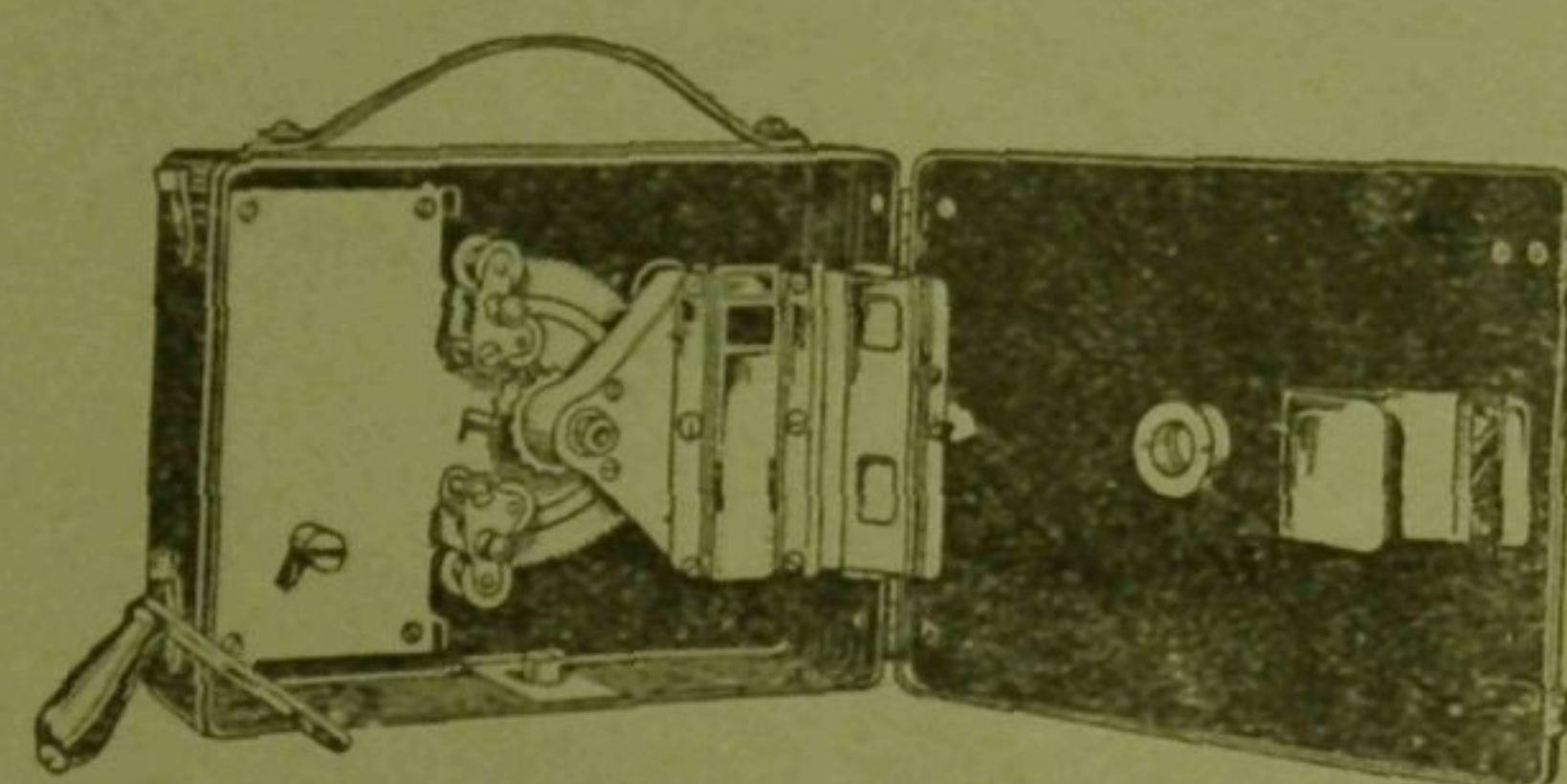
Jos. Kuhn & Co., 118 $\frac{1}{2}$

Bradley

Jersey Herd produces 34 per cent Cream and supplies

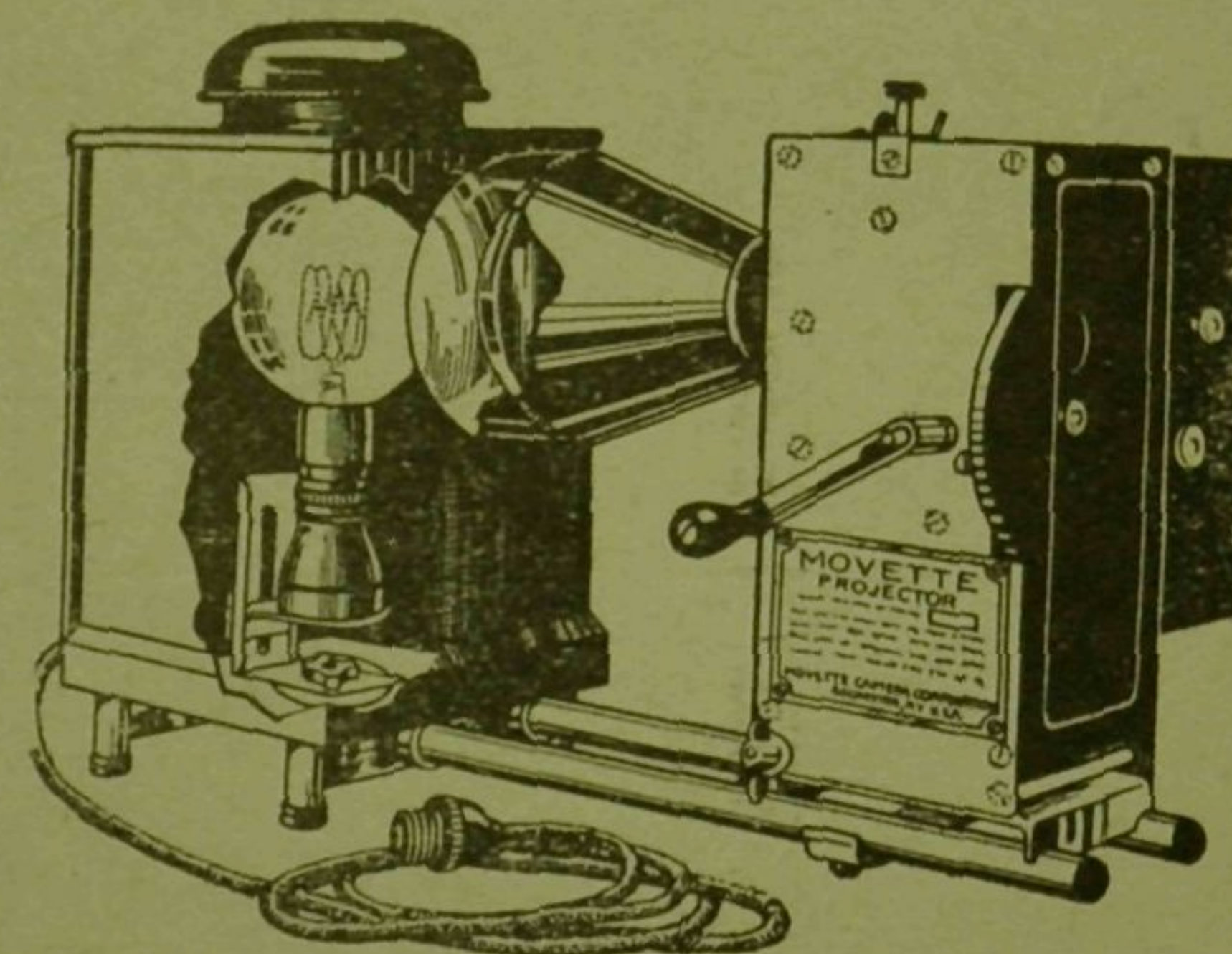
JOHN SHULER & CO.

with their Quality Ice Cream that we enjoy so much.



The **MOVETTE**

Moving Picture



CAMERA AND PROJECTOR

The Bausch and Lomb *Balopticons* and the Victor-*Stereopticons* are being *Demonstrated* in Room 203.

FREE SHOW

by

LOYDE'S
TWO STORES.

FACULTY OF THE ELECTRICAL ENGINEERING DEPARTMENT

Ellery B. Paine.....	Acting Head of Dept..
Morgan Brooks.....	Professor
Edward H. Waldo.....	Assistant Professor
Philip S. Biegler.....	Assistant Professor
Leonard V. James.....	Associate
Ira W. Fisk.....	Associate
Abner R. Knight.....	Associate
John W. Davis.....	Instructor
Peter J. Nilsen.....	Instructor

DEPARTMENTAL OFFICERS OF THE SHOW

Business Department—G. C. Wilson, Manager

Purchasing.....	H. R. Richardson, '17
Correspondence.....	F. E. Butterfield, '17
Mfg. Exhibits.....	L. A. West, '19
Local Exhibits.....	J. A. Craig, '19
Booth Assignment.....	N. D. Jenkins, '20

Engineering Staff—D. G. Evans, Chief Engineer

Expert Mechanic.....	S. J. Lurie, '17
Electrician.....	A. N. Lendman, '17
Circuit Control.....	L. Church, '17
Power.....	A. J. Schoch, '17
Recorder.....	H. A. Ryder, '18
Illumination.....	E. O. Swanberg, '18
Wiring.....	W. B. Barber, '18
Wiring.....	H. B. Schlacks, '19

Advertising Department—P. A. Raibourn, Manager

Publicity.....	G. E. Potter, '17
Program.....	V. H. Dupre, '17
Program.....	M. E. Reagan, '17
Printing.....	G. B. Hopkins, '17
Posters.....	J. H. Euston, '18
Local Publicity.....	A. Kraft, '20
Newspaper.....	W. J. Geiger, '19
Newspaper.....	A. Drucker, '20

Construction Staff—E. R. Petzing, Superintendent

Decorator.....	W. S. Slack, '18
Decorator.....	C. L. Bruns, '19
Carpenter.....	H. A. Pearson, '17
Carpenter.....	E. R. Nightengale, '19
Structural.....	R. H. Dawson, '20
Erection.....	E. R. Devol, '19
Painter.....	H. Knight, '20
Mechanic.....	F. G. Fee, '20

E. E. SHOW IS NOW ON
Marshall's *Spring Show of*
WOOLENS AND FURNISHINGS
—is—
"Always the Best of the Newest"
Bradley Arcade

The **ALAMO**
The Home of Good Things to Eat
Special Lunch 25c
Evening Dinner 25c
Short Orders At All Hours
6:30 A. M. to 8 P. M. Bradley Arcade

FULL VALUE
for your money is what you get when
you patronize the
Arcade Confectionery
Mr. and Mrs. Jimmie

IN LOOKING FORWARD
To the days of sunshine, don't forget that a few good games of
Billiards will make the time seem shorter. Pleasant rooms, con-
genial companions, good tables and good service add greatly to the
pleasure of the game.

Arcade Billiard Parlors
DEWEY NEWMAN, Proprietor Bradley Arcade

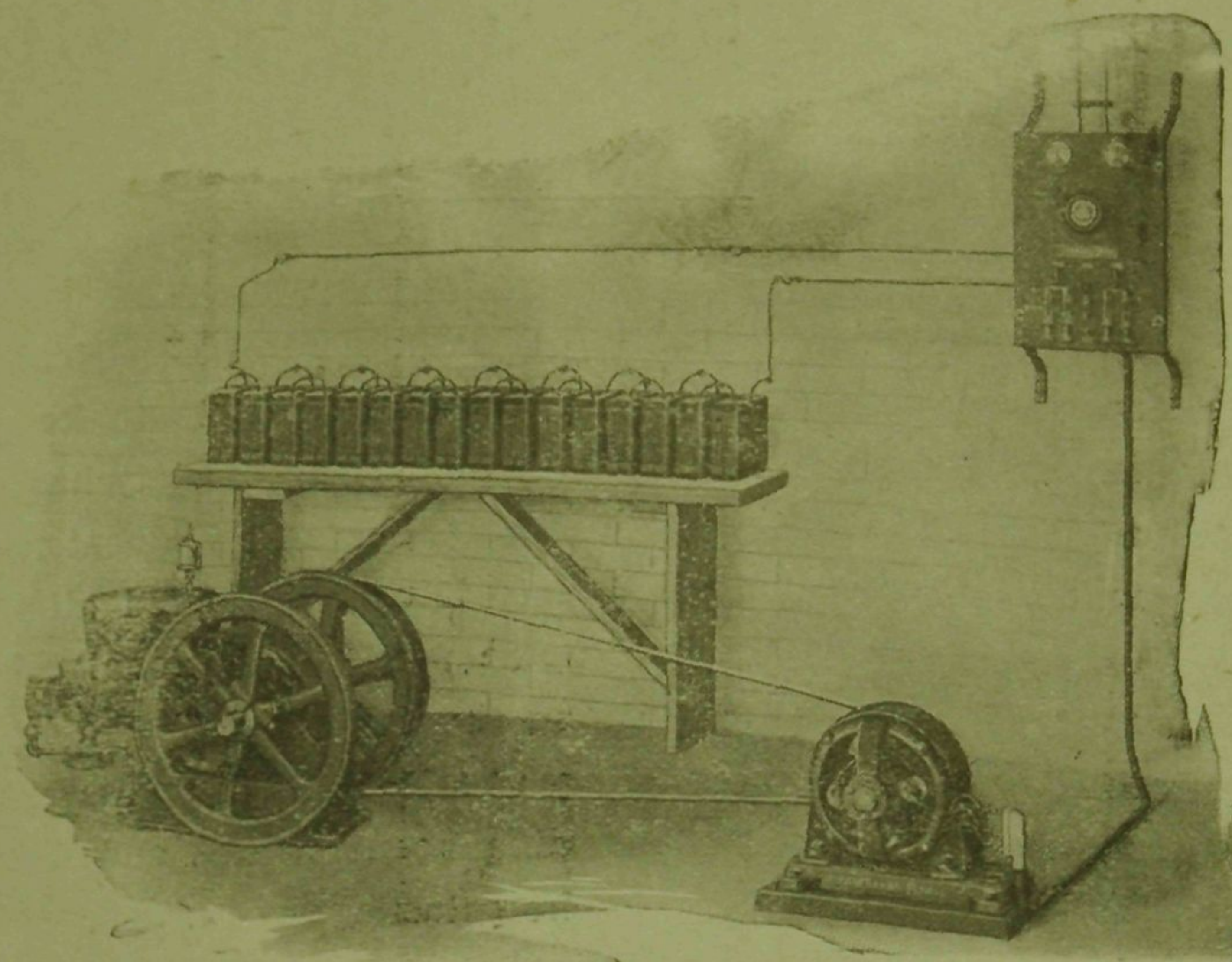
THE PURPOSE OF THE SHOW

There has been such a rapid advance in the field of Electrical apparatus in the past few years, that it has been almost impossible to keep in touch with all the details. Hence, the Electrical Engineering Society has considered it advisable to place this display before the public as an educational feature. The management has made every effort to have represented all the various uses to which electricity can be put. Some purely educational exhibits have been added for the purpose of explaining the fundamental and less complex theories in electrical development. Many so-called "freak stunts" are included in the program for the purpose of arousing keen interest and demonstrating ingenuity on the part of the students. The patronage of past shows has proved the worth of the undertaking.

OUR GRATITUDE

The Society extends its sincere thanks to all those who have helped in any way to make the show a success. Especially, to the Electrical Engineering Department for the use of apparatus. Also to the merchants, faculty, and students who made the undertaking possible by their guarantee of financial assistance in case of any unexpected deficiencies; and finally to the merchants and manufacturers who have assisted both by loaning material and advertising.

Electric Light in Your Own Home at Low Cost



Fairbanks-Morse "F" Lighting Plant With Type "Z" Engines

The plant shown above will operate economically on KEROSENE and run 100-18 candle power lights for five hours. The engine can also be used for pumping water and other power needs.

Fairbanks, Morse & Co.

900 S. Wabash Ave.

Chicago

PROGRAM

The Electric Sign

The electric flash sign placed at the intersection of Neil, Church, and Main Streets was designed and constructed entirely by students. It is of the latest type and represents the high degree of perfection which has been realized for advertisement by means of electricity.

R. E. McKeever, '18 } Designers.
R. A. Harvey, '18 }

Construction in charge of R. E. McKeever with the assistance of:
J. R. Boyle and A. R. Miller.

GYM ANNEX

1. The Development of Power

By Commonwealth Edison Co., Chicago.
Public Service Co. of Northern Illinois.
Illinois Northern Utilities Co.
Central Illinois Public Service Co.
Central Illinois Utilities Co.
Illinois Central Station Systems.

Photographs, maps, charts, and models illustrating the economic basis of the central station industry—an industry particularly attractive to engineers. Exhibit shows many of the interesting features of Illinois' central station companies, the extent of the electrical systems, the uses of electrical energy, and also includes illustrations of employees' activities.

In Charge of Representatives

2. Fixtures and Farm Lighting Systems

By The Kruse Electric Shop, Champaign

The service which electricity offers for use in the home. Illumination from fixtures of the latest design. Vacuum cleaners and laundry outfits. The Universal Storage Battery Plant.

In Charge of Local Dealer

3. Good and Bad Types of Wiring and Standard Practice for Electrical Work

By International Brotherhood of Electrical Workers

This display shows how unskilled labor, if permitted, can wire a house in such a manner that the entire structure may be in constant danger. Yet when properly installed, electrical circuits are absolutely harmless.

*Paramount
Pictures*



PARK

5,000 better
theatre show

Paramount Pictures

Princess Theatre

MAIN ST., URBANA

TODAY—THURSDAY, APRIL 12—TODAY

World Brady-Made Feature

ETHEL CLAYTON

Former Champaign Girl, in

"Man's Woman"

4 Automobile Electrical Equipment

By The Burr Co., Champaign

Demonstration of the enormous energy contained in a storage battery. Type of battery used in United States Submarines. How batteries are charged in service on an automobile. What batteries are made of and how assembled.

In Charge of Mr. Shoemaker, Local Representative

5. The Use of Carbon in Electrical Apparatus

By Nungesser Carbon & Battery Works, Cleveland, Ohio

Various types of dry cells.

Carbon brushes for sliding contacts on large and small electrical motors.

In Charge of C. R. Hollingsworth, '19

6. Electric Railway

This miniature railway has its equipment modeled after the Chicago, Milwaukee & St. Paul Railroad, the locomotive being a 46" model. A complete automatic block system is in operation which stops one train if another is not clear of the next track section.

In Charge of H. L. Olesen, '18

Assistant, J. H. Euston, '18

7. Mono-rail

The most perfect method of railway transportation. No rocking of cars, no side thrust on curves, great possibility of speed. Constructed in University Shops.

In Charge of G. B. Myers, '20

Assistant, S. J. Lurie, '17

8. Wireless Telegraph Installations

By Decatur Electrical & Radio Co., Decatur, Illinois

Sending and receiving apparatus for amateur and Commercial Wireless Telegraph Installations. Outfit complete in every detail. The very latest developments in wireless specialties and apparatus.

In Charge of Harold E. Burg, Representative

9. Optical Illusion

Two busts occupy the same space at the same time! Where do they go and from whence to they come? Is it the fourth dimension? No mirror is used. The effect is produced by the proper control of lights and by semi-reflection.

In Charge of E. D. Swanberg, '18

10. Quebec Bridge

Miniature reproduction of the second catastrophe of the Quebec bridge. In this exhibit the center span is lifted by electro magnets from the floating barges.

In Charge of H. P. Jennett, '19

Assistants E. J. Nusbaum, '19

W. J. Volk, '18

FARM LIGHTING PLANTS

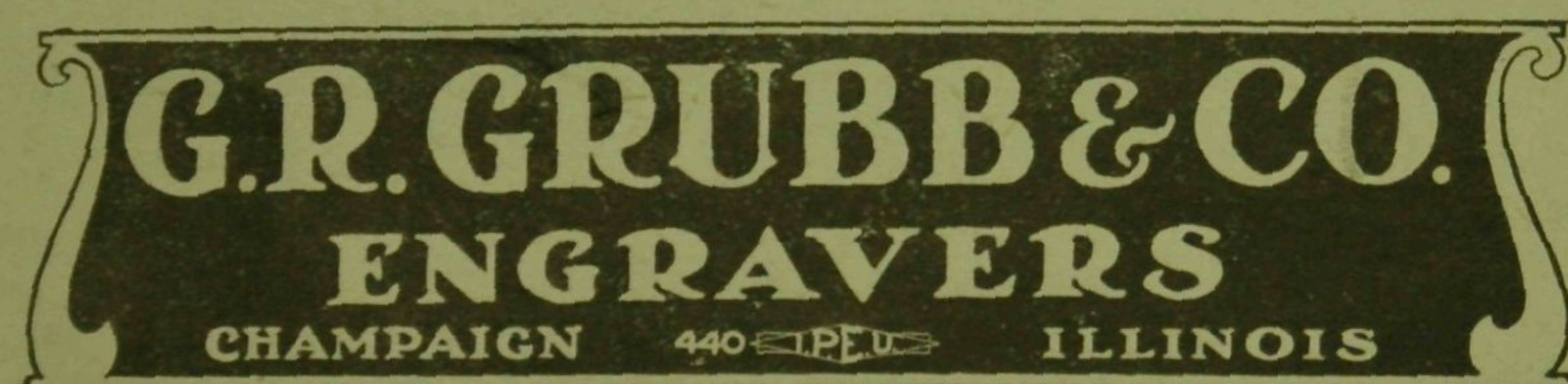
For Your Country Home

Meet us at Booth No. 15 and see our demonstration

Ideal Electric Company

Office and Salesroom Opp. Inman Hotel

Champaign, Ill.



SENIORS:

Save money on your printed thesis title. We are printing them at special rates this year. Bring in your copy now or step in and leave your order. You can't afford to wait until we are too busy to take care of your work. Let us have your order NOW.

THE HENDERSON PRINT SHOP

613 S. WRIGHT ST.

Don't forget to see us about your engraved cards for your commencement invitations.

11. Incandescent Lamps

By Bryan Marsh Co., Chicago

Showing the development of the filament lamp from the early stages. Also, the process of manufacturing electric lamps, and various types in use at the present time.

In Charge of G. P. Winn, '18

Assistant G. L. Randolph, '18

12. Home Light & Water Systems

By the Fairbanks, Morse & Co., Chicago

Showing the advantages of an independent Electric Lighting Plant, 100 light capacity; a Twin Automatic Electric Washing Machine; and independent Water System. Power furnished by motor from electric dynamo. Dynamo operated by a 3 HP Kerosene Engine.

In Charge of E. W. Parker, Springfield Representative

13. Wireless Receiving Apparatus

By Mignon Wireless Corporation, Elmira, N. Y.

Mignon apparatus is noted for its durable type of construction. It is capable of receiving signals up to 9000 miles distance.

In Charge of G. Koehler, '18

Assistant F. A. Ell, '18

14. Wireless Sending Apparatus

Demonstration of Modern Wireless Apparatus which is designed to carry on radio communication several hundred miles. Sending Set designed and built in University Shops.

In Charge of Glenn Koehler, '18

Assistant F. A. Ell, '18

15. Motor Driven Appliances and Farm Lighting Outfits

By Ideal Electric Co., Champaign

The apparatus here shown demonstrates the many uses for electricity in the home. The convenience with which things can be done by electrical power has caused it to become very popular among housewives.

In Charge of Local Dealer

16. Harbor Defense by Electrically Operated Mine

By The Engineering Company of the University Regiment

This spectacular display shows the great assistance which electricity is capable of contributing to modern defense. How mines are set off with such mechanical precision that it is impossible for hostile ships to pass the danger zone, and at the same time friendly ships are in no ways endangered.

In Charge of Lieutenant E. R. Petzing, '18

Assistants, Sergeant W. H. Ketelhut, '19

F. Klenk, '19

D. L. Hardin, '19

SEE THE Monroe Calculating-Adding Machine

The Monroe Calculating-Adding Machine can be operated by anyone. No expert operator required. A machine that adds rapidly and multiplies, divides, and subtracts as fast as other machines add.

Offices in all Principal Cities

New York Office
Woolworth Building

Factory
Orange, New Jersey

Chicago Office, 230 W. Monroe Street

HENRY H. DOTY, Central Division Manager

Urbana and Champaign Gas and Electric Company

Cordially Invite
Your Inspection

Booth No. 33

17. Block Signals

By Illinois Traction System

The I. T. S. is protected by the type of signals shown in this exhibit. Everything operates automatically and trains are prevented from entering upon sections of track where there is either a broken rail or another train.

Springfield Representative

18. Miniature Reproduction of Lightning Phenomenon

Lightning striking a house. The spark is produced by a small tesla coil. This display shows conclusively that lightning rods are a protection.

In Charge of S. M. Christophersen, '17
Assistant G. E. Underhill, '20

19. Perpetual Motion

102 Per Cent Efficiency

This seemingly disproves the proof of the impossibility of manufacturing energy. Maybe perpetual motion is not entirely out of the question.

In Charge of P. C. Jones, '17

Electrical Mystery Rod

The bar rolls back and forth while under no electrical, magnetic or static influence. There are mysteries involved which many scientists have worried over.

In Charge of H. B. Dutton, '17
Assistant F. A. Brooks, '17

Gravitational Tipping Spheres

This arrangement is such that the loss of energy is almost zero. Once started the rocking will continue indefinitely, since nothing acts to stop it.

In Charge of O. Isaacson, '18

20. Experiments of Interest in the Study of Physics

Means for explaining the present theory of Magnetism. Some queer facts in connection with electro-magnetic action and induced currents. Also some illusive effects of light.

In Charge of L. Church, '17
Assistants G. L. England, '19
E. R. Devol, '19

21. Electric Driven Cars

By Detroit Electric Co., Detroit

The electric driven vehicle has had many improvements in the past few years. The rear axle demonstration shows the flexible control of such cars. Clean, quiet, and smooth running are characteristics of the electric cars.

In Charge of Mr. Parker, Local Dealer

ILLINOIS TRACTION SYSTEM

"The Only Way"

Every Day and Every Hour Service

URBANA AND CHAMPAIGN

—to—

Danville
Homer
Monticello
Decatur
Springfield
Clinton
Lincoln
Bloomington
Peoria
St. Louis

LOCAL, LIMITED, PARLOR CAR AND
SLEEPER TRAINS

URBANA LIGHT, HEAT & POWER Co.

Electric Light, Power
and Steam Heat

All Kinds of Electrical Labor Saving Devices

Motors

Utility Power Sets

Vacuum Cleaners

Irons

Grills

Table Appliances

Washing Machines

118 East Main Street—Urbana

JOHN A. GLOVER

General Superintendent

22. Electrical Appliances

By Central Electric Co., Chicago

A new type of rectifier for use in charging storage batteries and similar work requiring direct current. Up to date low voltage farm lighting plant and household specialties for use with the same. Latest developments in 110 volt appliances for use in the home. Rubber covered wires and cables.

In Charge of L. Privat, Peoria, Ill.

23. Magnetic Action

By Acme Wire Co.

Demonstration of the properties of electro-magnets, their parts, and the relation of these parts to one another. Peculiar actions caused by the invisible force.

In Charge of F. A. Zimbelman, '19

Assistant F. J. Reinwald, '19

24. Electric Motors

By Emerson Electric Co., St. Louis, Mo.

An exhibit of small motors from 1-30 to 1-4 Horse Power for alternating and direct current work. Small and large electric fans to keep you cool next summer.

In Charge of M. E. Reagan, '17

Assistant V. H. Dupre, '17

25. Human E. M. F.

Measurement of human body resistance by passing an indiscernable current from hand to hand, noting the deflection of the extremely delicate galvanometer. Get your potential rating here too.

In Charge of V. H. Dupre, '17

Assistant M. E. Reagan, '17

26. Universal Heating Appliances

By Landers, Frary & Clark, Chicago

Displaying high grade electrical appliances, featuring Coffee Percolators in a wide range of designs, sizes and decorations. A special exhibit of the Four-Heat Grille is another point of interest. Every modern household appliance electrical will also be found in this booth.

In Charge of Mr. Swartz, Dealer

27. The Electric Laundry

By Hurley Machine Co., Chicago

Exhibiting the Thor Washing Machine and Thor Ironing Machines, the most complete home laundry unit in the market today. The Thor is a thorough washing device, carrying out the idea of its designers, to accomplish its purpose with minimum wear. Thor ironing machines are superb ironing devices—a very wide range of pieces lending themselves to their work.

In Charge of Mr. Swartz, Dealer

After The Show

STROLL down Green Street to 608 and indulge in our delicious Sundaes, Bostons and Luncheons.

Special
E. E. SUNDAE 15c

D. E. HARRIS'

CAMPUS CONFECTIONER

W. H. HAMMERSMITH

J. H. PEARCE

Electrical Contractors

GAS AND ELECTRIC FIXTURES AND SUPPLIES

Two Stores—No. 8 Taylor St., No. 510 E. Green St., Champaign

Twin City Electric Company

Bell Phone 2145

Auto Phone 1450

Household Electrical Appliances

IRONS, TOASTERS, CHAFING
DISHES, ETC.

The CO-OP

On the Square

28. Low Voltage Specialties

By Western Electric Co., Chicago

The operation of farm lighting plant. This outfit delivers power to washing machines, soldering irons, fans, vacuum cleaners, toasters, and various other devices. The feature of this system is that it operates on 32 volts, a voltage so low that the human system could scarcely detect it.

In Charge of H. C. White, Agent, Thomasboro, Ill.

29. Milburn Electric Automobile

By B. C. Nelson & Co., Champaign

Simplicity of control is of importance in the operation of any car. The electric drive affords both convenience and easy control which are unequaled. Electric cars are easily charged as shown by the motor-generator set. Cars will run 60 to 100 miles per charge.

In Charge of B. C. Nelson, Local Dealer

30. Electric Loop the Loop

A miniature imitation of the thrilling death defying circus stunt. It is expected that the amusement parks of the large cities will soon add this "joy ride" as an attraction.

In Charge of H. H. Schroeppel, '17

Assistant E. D. Swanberg, '18.

31. Modern Applications of Electrical Energy for Heating Purposes

By Hotpoint Electric Heating Co., Chicago

Electricity offers the most convenient method possible for cooking purposes. Moreover, its use on a smaller scale for the purpose of heating flat-irons, water, curling-irons, bed warmers, and toasters affords quick and satisfactory service.

In Charge of A. W. Kreuger, Territorial Representative

32. Electrical Cleaning

By Swartz Electric Shop, Urbana

The Hoover Suction Sweeper and Appliances are among the most practicable of modern home cleaning devices. They are based upon scientific cleaning principles including three distinct cleaning operations, viz., shaking, sweeping, and vacuum cleaning. By actual test it removes 95% of the dirt without wear and tear.

In Charge of Mr. Swartz, Dealer

33. Lamps and Appliances

By Urbana and Champaign Rwy., Gas, and Electric Co., Champaign, Ill.

Many serious mistakes in house lighting are made by the wrong combinations of lamps and reflectors. This display of Edison Mazda Lamps shows the proper unit and type of reflector for the different

HOWARD STUDIO

602 EAST JOHN STREET

E. L. MELTON, Mgr.

The management of the HOWARD STUDIO wishes to announce to its many patrons, and the general public, that they have secured the services of one of the few Carbon Portrait artists in the United States, Mr. Carl Ruegge. Mr. Ruegge is an artist of many years' experience and we do not hesitate in saying that he is one of the best photographers in the world. A sitting will convince you. Make your appointment now. See our display Carbons in show window.

HOWARD STUDIO

"Portraits De Luxe"

602 East John St., Champaign, Illinois
Open Sundays from 9:30 to 1 O'clock

Y. M. C. A. Cafeteria

Now Under New Management

H. GUNDERSON

WEEK DAYS

Breakfast 7:00 A. M. to 8:30 A. M.
Dinner 11:30 A. M. to 1:00 P. M.
Supper 5:30 P. M. to 7:00 P. M.

SUNDAYS AND HOLIDAYS

Breakfast 8:00 A. M. to 9:30 A. M.
Dinner 12:00 A. M. to 1:30 P. M.
Supper 5:30 P. M. to 7:00 P. M.

French Chef

Our Motto: Pure Food, Firstclass Service, Reasonable Price

classes of illumination. Miscellaneous household appliances, especially those for cooking purposes are shown as a Domestic Science Exhibit.

In Charge of Local Representative

34. Electrical Piano, Phonograph, and Sewing Machine

By D. H. Lloyd and Lloyd's University Store, Champaign, Ill.

The many qualities of electrical power have won for it a place among the most refined operations. The New Home Electric Sewing Machine shows the absolute control and variation of speed possible. The Standard Electrical Player Piano, The Edison Phonograph, and Victor Talking Machines in operation demonstrate the silence of motor action and smoothness of turning effort.

In Charge of Mr. Bailey, Local Representative

35. The Electric Fountain

The electric fountain is a copy of the fountain in the City Park of Denver. As the stream of water is thrown in the air it contains a beam of light which is refracted by the water, remaining with it until the water breaks into brilliant drops. This should give one the impression of a shower of diamonds.

Architecture Geo. Unger, '18
Built by K. H. Gordon, '18
Assisted by R. McLaughlin, '18
Frank Foster, '18
W. W. Granger, '18

E. E. LABORATORY

The main laboratory is decorated by electric lighted Japanese Lanterns. This decoration was arranged by H. Horimura and K. Nakada.

36. The Bell Telephone System

The details of the connecting system, showing the operation of the central switch board. Good and bad tactics in the art of signaling the operator.

In Charge of D. A. Hills, '17
Assistant H. G. Simmons, '19

37. The Automatic Telephone System

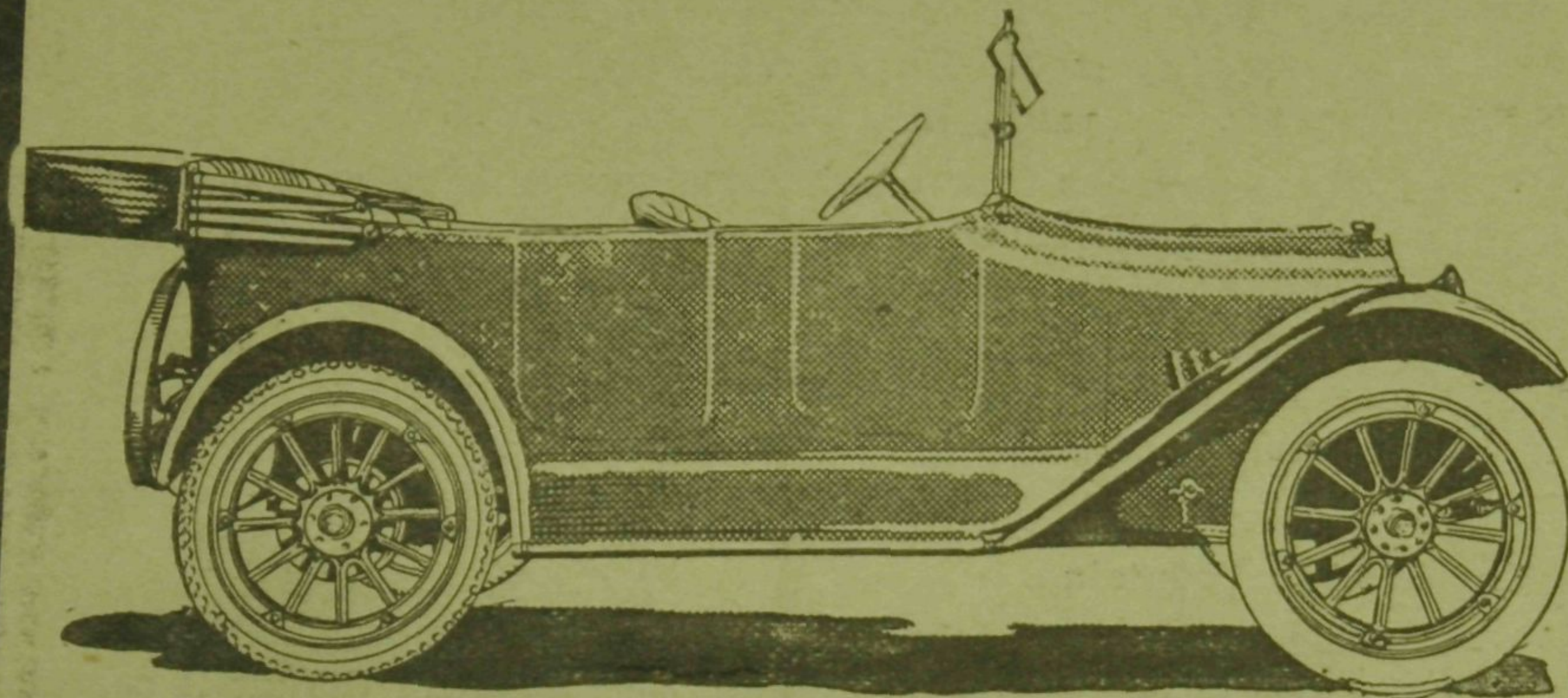
Exhibition board showing the operation of automatic selective devices as used in Champaign and Urbana. This shows how the operator has been replaced at the central station by mechanical arrangements.

In Charge of C. L. Pfeiffer, '17

38. Commutator Rectifier

This apparatus is a new and highly efficient means of converting alternating current into direct current for the purpose of charging storage batteries. Neither a motor-generator set nor a mercury-arc is necessary for its operation.

In Charge of P. B. Burley, '20



Chevrolet "490" Model Touring Car, \$550.00

We Sell and Deliver

Chevrolet Motor Cars

EVERY DAY

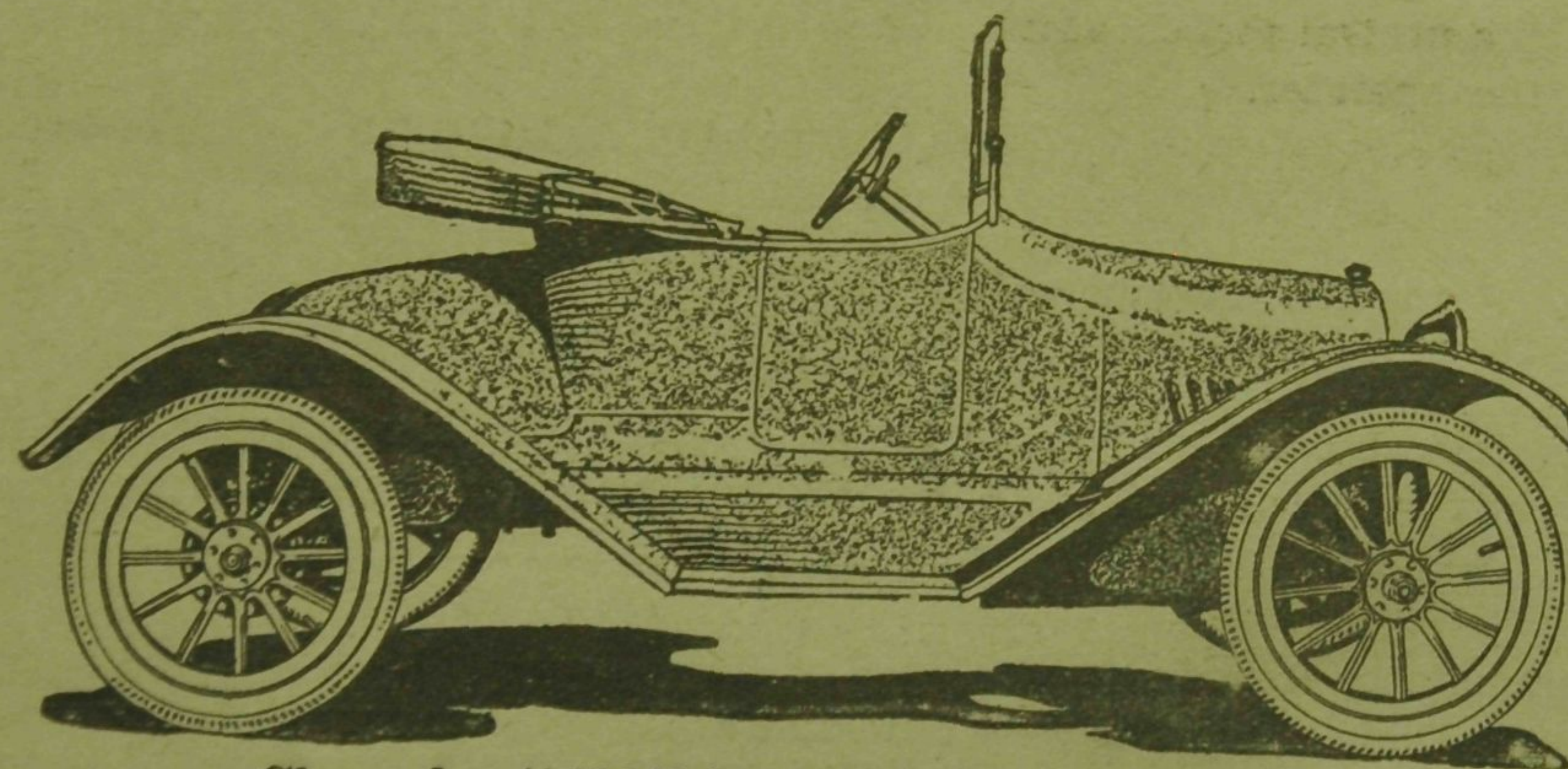
Have You Got Yours?

LUMLEY BROTHERS

Hickory Street, Champaign, Ill.

Distributors of

*Chevrolet, National, Oldsmobile and Mitchell
Motor Cars*



Chevrolet "490" Model Roadster, \$535.00

39. The Principle of the Transformer

The development and theory of the transformer showing how current may be induced in a near-by coil without any electrical connection. In this manner alternating current can be changed from high to low voltage or vice versa. This method is used almost universally in transmission systems.

In Charge of R. E. Foulke, '18

Assistant C. D. Doolen, '18

40. Operation of Generators

Demonstrating the fundamental principles of electric rotary machines by showing power input and individual power output. This shows some of the testing methods used in electrical laboratories.

In Charge of J. R. Boyle, '19

41. Magnetic Blow-Out

The arc from transmission lines to ground started by lightning must be extinguished in order to prevent disastrous short circuits. This scheme is also in use on street car controllers.

In Charge of A. N. Lendman, '17

Assistant G. L. England, '19

42. Induction Telephone

The wireless transmission of sound by magnetic induction. This arrangement offers large possibilities for development in the telephone field.

In Charge of L. C. Macmillan, '17

43. Electroplating

Showing the principle of practical uses of electrolysis. Copper and silver plating of metals, and even animal and vegetable specimens.

In Charge of L. G. Fee, '20

Assistant W. Lieberman, '18

44. Museum

The striking feature of this exhibit is that less than 35 or 40 years ago all this apparatus was up-to-date. This shows the extremely rapid growth of electrical development. Many of these machines were made in the laboratory by former students for special work.

In Charge of H. T. Gallaher, '17

Assistant L. A. West, '19

45. House Wiring Specialties

By Chelton Electric Co., Philadelphia, Pa.

Some of the inside working parts of electrical equipment which enter into the process of house-wiring. Switches, receptacles, etc.

In Charge of R. Hasenpflug, '20

LYRIC THEATRE

Presenting Quality Feature Plays

THURSDAY
And FRIDAY APRIL 12-13

The Two Popular Vitagraph Stars

**EDITH STOREY and
ANTONIO MORENO**
In "MONEY MAGIC"

From the book by HAMLIN GARLAND

Saturday, April 14th
CARLYLE
BLACKWELL
In "A Square Deal"

Monday and Tuesday, April 16-17
THEDA BARA
In "The Tiger Woman"

46. Bucking Broncho

Here are some of the problems which the Electrical Engineer has to straighten out. Just when you think it is going ahead all right, it stops and starts back, only to reverse again. Illustrating the innate obstinacy of inanimate objects.

In Charge of H. A. Pearson, '17
Assistant J. H. Wien, '18

47. Frying Eggs on Ice

This stunt shows the wonderful and mysterious powers of an invisible force. This is absolutely no fake. The ice is real and the griddle is hot.

In Charge of H. A. Ryder, '18
Assistant J. A. Craig, '19

48. Speed Control

The Ward-Leonard System here shown is the most highly developed method of flexible and accurate control. This system is in use on American Battleships. A three machine system so arranged that the motor can be run from zero to maximum speed.

In Charge of H. R. Seavey, '18
Assistant A. J. Hair, '18

49. Peculiar Behavior of Steel Balls on Mirror

Again that all powerful invisible force. It is a most necessary force in the electrical world.

In Charge of H. H. Archbold, '19
Assistant C. J. Bolger, '20

50. Live Matches and Magnetic Action

Most people have seen this display in various show windows and no doubt have wondered at the fete. It is produced by a rotated electro-magnetic field.

In Charge of J. L. Rowe, '17
Assistant H. Horimura, '17

51. Electric Cannon

There are wonderful possibilities for a gun of this type where no explosives are necessary. Closing a switch allows an electric current to flow through a coil. The induced magnetism hurtles the projectile from the gun.

In Charge of F. B. Doyle, '19

52. Meter Testing

The principle of electrical energy indicating apparatus. How to read your own meter. The testing and adjustment of meters for correct reading.

In Charge of C. N. Clark, '20
Assistant W. L. Kenney, '20

53. Static Electricity

The principle of static electricity. Its relation to kinetic electricity. All manners of harmless sparks and discharges.

In Charge of C. J. Singh, '17

54. Static Corona

Why wait till you die to get a halo? By this device high voltage is made clearly visible after passing through the human body. The small current is harmless and so this peculiar sensation may be experienced by all.

In Charge of N. D. Jenkins, '20
Assistant J. H. Heuer, '20

55. Operation of Street Car Controller

Observe the inside working parts of the control box and see how the motorman varies the speed of the car by turning the handle. This outfit is the latest improved interlocking type, such that all apparatus is protected from mistakes by the motorman.

In Charge of C. A. Wagner, '18

56. Automatic Elevator

This elevator is controlled automatically from the switchboard located on the lower portion of the shaft. Push the button corresponding to the floor to which you wish to go and it will go to that floor and be stopped by an automatic brake. This type of elevator is coming into practical use. The elevator in the Administration Building on our own campus is operated by this method.

In Charge of W. E. Bull, '18

Assistants G. E. Underhill, '20

R. Kember, '19

57. Synchronization of Three Phase Alternators

In order to connect alternating current generators in parallel they must first be in synchronism which consists of same frequency, voltages equal and opposite in phase position. The rotating lamps indicate the proper instant for closing the switch.

In Charge of Y. Woo, '17

T. S. Yang, '17

58. Wireless Light

The incandescent lamp under water can be operated at will without any electrical connections to the lamp other than the coil in the jar. The lamp is lighted by induced currents.

In Charge of M. S. Hancock, '17

Assistants M. H. Cook, '19

F. J. Reinwald, '19

59. Photo-Electrical Display

Showing the ionizing effect of the ultra-violet rays of an arc light. These rays are of extremely short wave length and are unable to penetrate a common glass plate.

In Charge of E. R. Devol, '19

60. Wave Forms

The visualization of sound waves is made possible by the oscillograph. Although primarily for use in determining electrical wave forms, it works equally as well on sound waves. It shows the minute variation of sound waves of different pitch or diffusion. The reflecting element in this apparatus has a period of ten thousand vibrations per second.

In Charge of H. O. Siegmund, '17

Assistants H. Fritz, P. G.

A. M. Tower, '17

61. Electrical and Magnetic Stunts

All these apparent variations in natural laws are easily explained by magnetic theory. Both direct current and alternating current electro-magnets are in use.

In Charge of O. F. Haas, '18

Assistant L. E. Trickle, '18

62. Auxiliary Switchboard

This board is for the purpose of conveniently making inter-connections between various points in the south end of the laboratory, to the supply, and to the main switch board.

63. Electric Cutting Torch

This illustrates the use of modern alternating current arcs for cutting steel plate and welding.

In Charge of J. R. Pursell, '18

Assistant H. E. Eveland, '20

64. Arc Welding

The manipulation of a direct current welding and cutting apparatus. An extremely high temperature is obtainable in this manner.

In Charge of R. N. Gleason, '18

65. Motor-Generator Set

This outfit consists of an alternating current synchronous motor connected by belt to direct current generator. It is used for the purpose of supplying direct current for experimental purposes and has a capacity of 45 kilowatts.

66. Main Switch Board

On this board are mounted the instruments and modern protective devices as used for distribution centers. Circuit breakers which prevent an excessive current from flowing. Synchroscopes, ammeters, voltmeters, regulators, etc.

67. Conversion of Light Into Electricity

This device has just recently been perfected by Dr. Jacob Kunz, of the Physics Department. The experiment is extremely delicate and is based upon the operation of a photo-electric cell.

In Charge of M. S. Hancock, '17

Assistants F. J. Reinwald, '19

G. L. Randolph, '19

68. Instrument Display

Showing the latest types of measuring instruments used in the laboratory and special work. There are 250 of these instruments besides those used for calibration and other highly accurate work.

In Charge of H. R. Richardson, '17

Assistants G. M. Haldeman, '18

M. M. Jones, '18

69 High Tension Discharge

By means of the big step up transformer voltage is raised from 110 to 100,000 volts. The average person can stand approximately 500 volts. Every precaution must be taken to prevent accidental contact with the terminals.

In Charge of H. R. Fritz, P. G.

Assistant H. R. Richardson, '17

70. Home Projection Apparatus

By D. H. Lloyd, Champaign, Ill.

At last the motion picture apparatus has been simplified to the point where expert operators are not a necessity. The local views shown were taken by means of these outfits. The Balopticon is operated on a 450 watt incandescent lamp; also a stereopticon using baby arc lamp for home amusement.

In Charge of Representative

71. Colored Illumination

The careful arrangement and delicate adjustment of lamps and color screens permits wonderful lighting effects. The color of the light is caused to gradually merge from one hue to the next until every color of the rainbow has been experienced. This system is often used for stage lighting effects.

In Charge of O. Tinkey, '17

Assistants V. Dushek, '17

W. Heckman, '20

72. Controllers for Vari-Colored Lights

By Allen Bradley Co., Milwaukee, Wis.

By means of these special carbon Rheostats the lights are dimmed and brightened. This makes possible the colored lighting effect. Notice how smoothly and evenly the light is regulated without sign of flicker.

In Charge of O. Tinkey, '17

73. Tesla Coil Operation

The phenomenon of high frequency current was first discovered by Nicola Tesla about 1890. The apparatus used here is patterned after that used by him in his later experiments. A condenser discharging thru an inductance causes a high frequency current which induces a potential of about 1,500,000 volts in the long secondary coil. This, discharging between two terminals, produces the long spark which is the feature of the exhibit.

In Charge of L. R. Gray, '17

Assistants W. E. Davis, '20

G. E. Morse, '19

G. P. Winn, '18

74. Motion Pictures

The electric arc plays a very important part in the proper projection of motion pictures. The educational films here shown are by courtesy of:

The Westinghouse Electric & Mfg. Co., Pittsburgh, Pa.

The General Electric Co., Schenectady, N. Y.

The Public Service & Utilities Companies throughout the State of Illinois

They show both manufacturing and operating points of interest concerning electrical equipment and development of power.

75. University Test Car

Free trip from the E. E. Laboratory to the Locomotive Laboratory and return. This car is equipped with an automatic starting device and registering apparatus for measuring current, voltage, power, speed, unevenness of track and many other variables. This car is used for test runs by students and faculty in the Railway Electrical Department.

In Charge of E. A. Roberts, P. G.

Assistant E. A. Martell, '19

76. X-Ray Apparatus

Portable X-Ray machine in operation every twenty minutes. By the aid of this machine the bones of the hand can be clearly shown. Explanation of how abscesses or foreign bodies may be located by means of the X-Ray. This type of apparatus has simplified both dental and surgical operations.

In Charge of S. J. Lurie, '17

Assistant C. L. Bruns, '19

77. Physics Department Tube Exhibit

Much of this display has been designed and constructed by the Physics Department under the supervision of Dr. C. T. Knipp. A demonstration of Geissler tubes of various sizes and shapes and degrees of exhaustion. Color effect of Positive and of Cathode Rays in helium and neon. Deflection of cathode beam by magnet. A new form of high-speed, high-vacuum mercury vapor condensation air pump. This pump obtains a high vacuum in three minutes.

In Charge of S. J. Lurie, '17

Assistant C. L. Bruns, '19

78. The Electric Furnace

Electricity supplies the heat for melting metals in a vacuum. The heating element is a helical carbon coil through which 8000 amperes can be passed. It was with the aid of this furnace that Mr. Yensen succeeded in getting metal whose magnetic properties far exceeded anything previously discovered.

In Charge of W. A. Gatward, P. G.

Assistant R. S. Quick, P. G.

79. Storage Battery

This set of storage cells has a capacity of 240 ampere-hours and supplies a potential of 120 volts. It is used in the department for special testing purposes.

80. Mercury-Arc Rectifier

By means of this apparatus alternating current is changed to current in one direction only. It furnishes the necessary direct current for charging the storage battery.

In Charge of D. W. McGill, '19

81. **The Exhibit of the Chemical Club in Cooperation with the E. E. Society**
In Charge of L. K. Cecil.
- A. **Explosives: Picric acid and guncotton**
The synthesis of these common high power explosives, and their explosive action, also a sample of trinitrofluorene, are shown.
W. R. Kirner, R. B. Horney
- B. **Dye-stuffs**
This shows the synthesis of some of the most used dye-stuffs and their application.
I. Morton, I. N. Hultman
- C. **Phosphine**
The ideal way to blow smoke rings.
M. E. Dreyfus, W. S. Muncie
- D. **Destructive distillation of coal**
This demonstrates the production of illuminating gas and the recovery of the by-products.
O. A. Cherry, H. L. Parr
- E. **Synthesis of Water**
By the explosive combination of hydrogen and oxygen gases, water is formed.
V. Voorhees, D. F. Wright
- F. **Exhibit of the Illinois State Water Survey**
Prof. Edward Barto and Assistants
- a. **Activated Sludge**
For the purification of sewage. Samples of sewage before and after treatment.
- b. **Ultra-Violet Ray**
For the sterilization of water. Plates showing the effect on bacteria before and after treatment.
- c. **Samples of Mississippi River Water before and after purification by filtration.**
- d. **Effects of water-softening and iron removal**
- e. **Map showing sanitary quality of municipal water supplies thruout the state.**
- G. **Synthesis of Ether**
Synthesis of and demonstration of the uses of ether.
L. R. Berner, W. W. Sunkel
- H. **Steam Distillation**
This is one of the most important means of purifying organic compounds.
B. K. Brown, R. H. Pierson
- I. **Parr Coal Calorimeter**
This is for testing the heat values of coal. The bomb is made of a special acid and high pressure resistant alloy of Prof. Parr's.

- J. **Microscopic Examination of Steel**
This shows how steels are examined for weaknesses. Pictures are shown of examples.
Dr. D. F. Mac Farland, R. G. Kreiling
82. **Shadow-Graph**
By Strauch, Photographic Finishing, Champaign
Your silhouette makes a splendid souvenir. Mr. Strauch demonstrates the making of these shadow pictures and sells them at a charge of ten cents. It requires from five to ten minutes to complete the process.
In Charge of Representative
83. **Rotary Gas Engine**
A true rotary engine with no reciprocating parts whatever. This engine was built here in the University Laboratories. It will operate on compressed air, steam or any explosive vapor.
Designer F. A. Brooks, '17
Operator T. F. Weiss, '20
84. **Mercury Vapor Lamps**
By Cooper-Hewitt Co., Chicago, Ill.
The quality of light from these lamps is peculiar. It has no red rays, and has a peculiar bluish green color which greatly distorts the color values of objects viewed by it. For work in which it is unnecessary to distinguish color values it has two distinct advantages. First, due to the absence of red rays, it is easy on the eyes, since these rays are the least effective in producing vision, and their heating power has an irritating effect upon the retina. Second, the nature of the light is such that objects are seen more sharply and details are more easily discernible than by white light. These lamps are chiefly used for drafting, photograph, and for lighting manufacturing areas.
85. **Special—The Monroe Calculating-Adding Machine**
A machine that adds, subtracts, multiplies, and divides. Saves time and errors. More than human.
In Charge of H. F. Doty, '20
86. **Loud Speaking Telephones**
Winkler-Reichman Co., Chicago
Observe the origin of the mysterious voice which assailed you from the sky.
In Charge of D. A. Hills, '17